

REMARKS

The Office Action dated April 14, 2005, has been received and reviewed.

Claims 1-52 are currently pending in the above-referenced application. Of these, claims 3, 11, and 13-52 have been withdrawn from consideration. Claims 1, 2, 4-10, and 12, which have been considered, stand rejected.

Reconsideration of the above-referenced application is respectfully requested.

Supplemental Information Disclosure Statement

Please note that a Supplemental Information Disclosure Statement was filed in the above-referenced application on March 8, 2004, but that the undersigned attorney has not yet received any indication that the references cited in the Supplemental Information Disclosure Statement have been considered in the above-referenced application. It is respectfully requested that the references cited in the Supplemental Information Disclosure Statement of March 8, 2004, be considered and made of record in the above-referenced application and that an initialed copy of the Form PTO/SB/08A that accompanied that Supplemental Information Disclosure Statement be returned to the undersigned attorney as evidence of such consideration.

Rejections Under 35 U.S.C. § 102

Claims 1, 2, 4-10, and 12 stand rejected under 35 U.S.C. § 102(b) for reciting subject matter which is purportedly anticipated by that described in U.S. Patent 5,752,182 to Nakatsuka et al. (hereinafter "Nakatsuka").

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single reference which qualifies as prior art under 35 U.S.C. § 102. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Nakatsuka describes a ceramic substrate 122 for high frequency uses. Abstract; col. 5, lines 19-22. As illustrated in FIG. 3 of Nakatsuka, the ceramic substrate 122 includes six somewhat centrally located terminals on one surface thereof. The terminals are arranged so as to

mirror the connection pattern of bond pads of a semiconductor device 101 that is to be secured to the ceramic substrate 122, as illustrated in FIG. 2 of Nakatsuka. *See also* FIG. 5; col. 7, lines 46-62. Plated through holes 114-119 extend through the ceramic substrate 122. Inductors 102-107 are located on the surface of the ceramic substrate 122 to which the semiconductor device 101 is to be secured. *See* FIGs. 2 and 3. Each inductor 102-107 surrounds a corresponding through hole 114-119. FIGs. 2 and 3; *see also* col. 5, lines 18-22. Conductive traces on an opposite surface of the ceramic substrate 122 electrically connect the conductive plating on the surface of each through hole 114-119 to a corresponding terminal 108-113 formed in an edge of the ceramic substrate 122. Col. 5, lines 22-28; FIG. 4; col. 7, lines 6-32.

Independent claim 1 is drawn to a semiconductor device package. The semiconductor device package of independent claim 1 includes a semiconductor device with “at least one bond pad on an active surface thereof,” at least one outer connector at a peripheral edge *of the semiconductor device*” (emphasis supplied), and at least one conductive trace extending between the at least one bond pad and the at least one outer connector.

Nakatsuka does not anticipate each and every element of independent claim 1 because the description of Nakatsuka is directed to a ceramic substrate 122 with outer connectors (*i.e.*, terminals 108-113), not to a semiconductor device with at least one outer connector on a peripheral edge thereof. Although Nakatsuka explains that a semiconductor device 101 may be electrically connected to the ceramic substrate 122, Nakatsuka does not expressly or inherently describe that the semiconductor device 101 includes at least one outer connector positioned on a peripheral edge thereof or a conductive trace extending between at least one bond pad of the semiconductor device and an outer connector thereof.

Accordingly, it is respectfully submitted that, under 35 U.S.C. § 102(b), independent claim 1 recites subject matter which is allowable over that described in Nakatsuka.

Each of claims 2, 4-10, and 12 is allowable, among other reasons, for depending either directly or indirectly from claim 1, which is allowable.

Claim 2 is further allowable since Nakatsuka lacks any express or inherent description of an insulative layer positioned between the ceramic substrate 122 and the conductive traces that

are carried thereby. To the contrary, since the ceramic substrate 122 of Nakatsuka is itself formed from an insulative material, there is no need for an intervening insulative layer.

Claim 4 is additionally allowable because Nakatsuka does not expressly or inherently describe that an insulative layer covers a back side of the ceramic substrate 122 disclosed therein. Again, the ceramic of the ceramic substrate 122 is itself insulative. Thus, there is no need for an insulative layer on the back side of the ceramic substrate 122.

Withdrawal of the 35 U.S.C. § 102(b) rejections of claims 1, 2, 4-10, and 12 is respectfully solicited.

Species Election

The outstanding Office Action indicates, “[t]his application contains claims 3, 11, and 13-45 drawn to an invention non-elected with traverse.” The election was made *without* traverse.

Rejections Under 35 U.S.C. § 103(a)

Claims 1, 2, 4-6, 8-10, and 12 are rejected under 35 U.S.C. § 103(a) for reciting subject matter which is assertedly unpatentable over that taught in U.S. Patent 5,138,115 to Lam (hereinafter “Lam”).

The standard for establishing and maintaining a rejection under 35 U.S.C. § 103(a) is set forth in M.P.E.P. § 706.02(j), which provides:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

It is respectfully submitted that there are several reasons that the teachings of Lam do not support a *prima facie* case of obviousness against any of claims 1, 2, 4-6, 8-10, or 12.

First, it is respectfully submitted that, without improperly relying upon the hindsight provided by the above-referenced application, one of ordinary skill in the art would not have been motivated to modify the teachings of Lam in such a way as to render obvious the subject matter recited in amended independent claim 1.

As amended, the semiconductor device package of independent claim 1 includes a semiconductor device with at least one recess in a peripheral edge thereof. Additionally, the semiconductor device package includes at least one outer connector that is positioned at least partially within the at least one recess.

Lam teaches a semiconductor device with conductive traces that extend across (from the active surface to the back side of a semiconductor device) the peripheral edges of a semiconductor device. The portions of the conductive traces that reside on the peripheral edges of the semiconductor device provide electrically conductive paths from bond pads on the active surface of the semiconductor device to locations adjacent to the back side of the semiconductor device. They may also be used to establish temporary electrical connections between the bond pads and corresponding terminals of test equipment.

Neither Lam nor the knowledge that was generally available in the art as of the earliest priority date for the above-referenced application would have provided one of ordinary skill with any motivation to develop a semiconductor device with an outer connector that is at least partially within a recesses in the peripheral edge of a semiconductor device, however.

Second, it is respectfully submitted that Lam does not teach or suggest each and every element of amended independent claim 1. Specifically, Lam lacks any teaching or suggestion of a semiconductor device with at least one recess in a peripheral edge thereof. Lam also lacks any teaching or suggestion of at least one outer connector that is positioned at least partially within at least one recess in a peripheral edge of a semiconductor device.

In view of the foregoing, it is respectfully submitted that, under 35 U.S.C. § 103(a), the subject matter recited in amended independent claim 1 is allowable over the subject matter taught in Lam.

Each of claims 2, 4-6, 8-10, and 12 is allowable, among other reasons, for depending directly or indirectly from claim 1, which is allowable.

Claim 5 is additionally allowable because Lam does not teach or suggest a semiconductor device package with at least one outer connector that includes opposite surfaces exposed at the active surface and back side of a semiconductor device. Instead, of teaching that the conductive traces thereof include a surface exposed at the back side of a semiconductor device, the teachings of Lam are limited to thin conductive traces with *edges* that are exposed adjacent to the back side of a semiconductor device.

Claim 6, which depends from claim 5, is also allowable since Lam neither teaches nor suggests at least one outer connector that comprises a recess extending substantially from one surface of the outer connector to an opposite surface of the outer connector.

Withdrawal of the 35 U.S.C. § 103(a) rejections of claims 2, 4-6, 8-10, and 12 is respectfully requested.

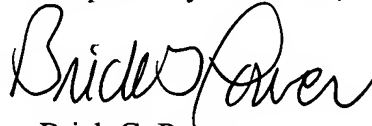
ELECTION OF SPECIES REQUIREMENT

It is respectfully submitted that independent claim 1 remains generic to all of the species of invention that were identified in the Election of Species Requirement in the above-referenced application. In view of the allowability of these claims, claims 3, 11, and 13-52, which have been withdrawn from consideration, should also be considered and allowed. M.P.E.P. § 806.04(d).

CONCLUSION

It is respectfully submitted that each of claims 1-52 is allowable. An early notice of the allowability of each of these claims is respectfully solicited, as is an indication that the above-referenced application has been passed for issuance. If any issues preventing allowance of the above-referenced application remain which might be resolved by way of a telephone conference, the Office is kindly invited to contact the undersigned attorney.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Brick G. Power". The signature is fluid and cursive, with the first name "Brick" and last name "Power" clearly distinguishable.

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